REMARKS

Applicant respectfully requests reconsideration of this application, and reconsideration of the Office Action dated November 8, 2002 (Paper No. 29). Upon entry of this Amendment, claims 2-7 and 22-31 will remain pending in this application. New claim 32 is also added. The amendments to the claims and the newly added claim are supported by the specification and the original claims. No new matter is incorporated by this Amendment. Moreover, no fees are believed due as a result of the addition of new claim 32.

In the Office Action, the Examiner indicated that the Amendment copy filed September 10, 2002 (Applicant's record reflects a faxing on September 6, 2002) was of poor fax quality. Specifically, it was indicated that claim 1 included two steps of providing the glass mass to a stabilizing section and that claim 27 was missing all together. The September 6, 2002 Amendment copy was submitted following a status check with the Examiner revealing that the After-Final Amendment filed July 9, 2002 via facsimile was never forwarded to the Examiner (as noted in the September 6, 2002 follow up filing, a fax "OK" confirmation as to all pages of the July 9, 2002 filing was received). An RCE was filed on October 9, 2002, with a request to have the July 9, 2002, After-Final Amendment entered. A Preliminary Amendment was subsequently filed on October 23, 2002 which included new claims 30 and 31. In response to the request that a complete copy of the filed claims be submitted with this Amendment, Applicant is enclosing a copy of the as filed July 9, 2002 claim set for reference.

As seen from the After-Final Amendment faxed on July 9, 2002 claim 1 included only one step of providing the glass mass and included a claim 27.

However, in view of the uncertainty as to the content of claim 1 considered in the last Office Action, Applicant is canceling claim 1 in the present Amendment and re-presenting a duplicate of the same as new claim 32. As the record reflects that the considered claim 1 was not commensurate with the presented claim 1 in the July 9, 2002, After-Final Amendment, consideration of this fact in considering the status as to whether a claim has been twice considered in future actions is respectfully requested.

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Claims 1-7, 30 and 31 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Applicant respectfully traverses.

The Office Action sets forth that claim 1 is considered indefinite because it includes two steps of providing the glass mass. As stated above, the claim 1 of record that was sent on July 9, 2002 by facsimile did not have two steps but appeared the same as the present claim 32. That is, Applicant has cancelled claim 1 by this Amendment and has reintroduced claim 1 as new claim 32. New claim 32 does not include two steps of providing the glass mass.

The Office Action also sets forth that the terms "enriched", "type" and "main" render claims 30 and 31 indefinite. In response, claims 30 and 31 have been amended by removing these terms.

In addition, the Office Action sets forth that given the description of basalt at page 1 of the present specification, the term "basalt" is indefinite in the claims. Applicant respectfully submits that the percentages described on page 1 of the present specification refer to the percentages of different types of oxides that are present as small inclusions in basalt rock and are not meant to describe basalt rock as a whole. In other words, the first type of rock (as described on page 1) is "enriched" with oxides of iron and titanium or

contains oxide inclusions that have about 70% iron oxide and about 20% titanium oxide. Applicant directs the Examiner's attention to Table 3 on page 7 of the present specification which shows the composition of the small inclusions in the basalt rock.

Applicant respectfully submits that those of ordinary skill in the art would find the claim reference to "basalt" as being definite while concurrently recognizing that basalt includes a broad group of rocks having different ratios of oxides (e.g., Applicant points to the Austin patent (U.S. Pat. No. 4,149,866) at Table 2 which indicates that the basalt 0-2 contains 50% of SiO_2 and 16% Al_2O_3). Applicant submits that those of ordinary skill in the art would readily understand what is intended by the term "basalt" as it is used in the present claims.

In view of the above remarks, Applicant respectfully submits that this rejection is overcome. Thus, reconsideration and withdrawal of this rejection are respectfully requested.

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Claims 27-31 were rejected under 35 U.S.C. § 112, first paragraph, as not being adequately described by the specification. Applicant respectfully traverses.

In the Office Action it was asserted that the phrase "separate, second furnace chamber" is not supported by the specification because the drawing does not show chambers that are "separate." In response, the term "separate" has been removed from the claims. Applicant submits that the specification and drawings provide ample support for a second furnace chamber. For example reference number 5 and 6 of Figure 1 show two chambers.

The Office Action also asserted that the specification does not support basalt being "derived" from anything. In response, the term "derived" has been removed from the claims.

In view of the above remarks, Applicant respectfully submits that this rejection is overcome. Thus, reconsideration and withdrawal of this rejection are respectfully requested.

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Claims 1-7, 22-26 and 30 were rejected under 35 U.S.C. § 103(a) as obvious based on Austin (U.S. Pat. No. 4,149,866) in view of Naber (U.S. Pat. No. 4,940,478) and Tsai (U.S. Pat. No. 4,816,056). Applicant respectfully traverses this rejection.

Prior to discussing the differences relative to the relied upon prior art, Applicant notes that the present invention concerns a method of producing basalt fibers including a preheating step and including a step of providing the melted basalt mass to a stabilizing section of the melting furnace, which stabilizing section defines a second furnace chamber having a bottom wall surface on which the molten basalt mass is placed, with the bottom wall surface of the stabilizing section being positioned at a height which is higher than the bottom wall surface of the firing space chamber (with the stabilizing section having an interior that opens out to the firing space chamber) until the glass mass reaches a fiber manufacturing temperature, and then, introducing the glass mass from the stabilizing section into a feeder by passing the glass mass through a feed port extending between an interior surface of said stabilizing section and the feeder and retaining the glass mass in the feeder to obtain a ready for feed out melt. The present invention also includes allowing the melt fed to the feeder and previously stabilized in the stabilizing

section to establish the ratios outlined on page 6 of the present application and set forth in the current claim 32.

As recognized in the Office Action, Austin does not disclose the method steps of the presently claimed method. Rather, Austin is merely cited for disclosing basalt compositions and thus a discussion as to how the claimed method of the present invention differentiates over the secondary reference to Naber and Tsai is set forth below. However, relative to reliance on Austin and its basalt composition discussion, Applicant notes the following additional differences between the claimed invention and Austin.

Unlike the claimed invention's method, Austin discloses a method for forming basaltic fibers not from any rock but from definite rocks with known composition. Percentages given in the tables 1, 2 and 3 characterize the raw basalts and not the basalt melt and Austin fails to disclose a melt having the ratio characteristics set out in claim 32 following the sequenced stabilization process of the claimed invention. In an effort to produce desirable fibers using the basalt compositions in Austin, those of ordinary skill using Austin's base material would have to choose the appropriate rock having corresponding composition, not rocks from any deposit with different compositions as provided for in the present invention with the sequenced stabilization technique. Furthermore, as noted above, the percentages described by Austin represent the percentages of basalt components such as ferric oxide prior to further processing. The claimed ratios in claim 32 reflect stabilizing and harmonized glass mass which develop following passage of the melt from the first furnace chamber, into the second furnace chamber and into the further stabilizing feed chamber. Accordingly, the assertion in the Office Action that the claimed ratios in claim 32 (which are appropriate for a variety of

basalt rock type starting materials) are inherently met is traversed, and respectfully submitted to be unsupported from the referenced disclosure in Austin.

Naber fails to remedy the deficiencies of Austin. While Naber indicates that basalt can be preheated, Naber does not describe the above noted method for producing basalt fibers and thus also fails to teach or fairly suggest the claimed method steps.

Tsai, like Naber, also fails to remedy the deficiencies of Austin. Tsai, like Naber and Austin fails to teach or fairly suggest the recited steps of the claimed method. Applicant notes that Tsai neither teaches nor suggests a stabilizing section like that of the claimed invention. Tsai teaches that his device includes a cooler at the waist between the refiner and the conditioner. Moreover, the waist has a lesser height so that the molten glass can be cooled in its upper flowing portion to retard forward velocity. *See Col. 6, lines 48-61.* Tsai teaches increasing the residence time of the glass in the refiner to allow sand grains in the glass material to completely dissolve. *See Col. 5, line 37.* In contrast, in the present invention the basalt mass remains in the furnace stabilizing section and feeder until the basalt mass is ready to be formed into fibers (see, for example, the ratios which develop following feeder section stabilization). In other words, any sand grains that are present in the basalt raw material received in the firing space are not to be dissolved but remain on the bottom of the furnace and are discharged periodically. This difference is illustrative of the fact that one of ordinary skill in the art would not look to Tsai in the context of a method for producing basalt fibers as it is not directed at a method of producing basalt fibers but, instead, introduces different techniques in achieving its sand grain glass melt.

The cited prior art is thus submitted not to present a prima facie case relative to the independent claims 27 and 32 and fails to teach or fairly suggest each and every

feature of independent claims 27 and 32. Furthermore, the prior art fails to provide any motivation to those of ordinary skill to modify the teachings of the combined prior art documents in a manner to arrive at the method of claims 27 and 32.

Applicant again makes the following comments which further distinguishes dependent claims from the cited prior art. For example, the temperature values in some of the dependent method claims include temperature values that are relative to the distinct sections discussed above. Thus, the assertion that it would have been merely a matter of routine experiment or optimization, is respectfully submitted to be unsupported, as it fails to take into consideration the temperature range distinctions which are due, at least in part, to the distinct sections set forth in the method of the claims and the nature of the process relative to forming fibers. This includes, for example, the temperature reduction discussion in, for example, claim 27 in going from the firing space chamber to the furnace chamber represented by the stabilizing section.

Moreover, claim 22 describes multiple heating systems for the respective distinct sections (which are provided in preferred embodiments of the invention) to achieve improved temperature control relative to the distinct sections. A discussion of how the cited art is considered to render obvious this temperature/control difference claimed interrelationship is lacking in the Office Action.

In view of the above comments, Applicant submits that this rejection is overcome. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

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Applicant respectfully submits that this Amendment and the above remarks obviate all of the outstanding rejections in this case, thereby placing the application in condition for immediate allowance. Allowance of this application is earnestly solicited.

If any fees under 37 CFR §§1.16 or 1.17 are due in connection with this filing, please charge the fees to Deposit Account No. 02-4300; Order No. 033611.002.

If an extension of time under 37 CFR § 1.136 is necessary that is not accounted for in the papers filed herewith, such an extension is requested. The extension fee should be charged to Deposit Account No. 02-4300; Order No. 033611.002.

Respectfully submitted,

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